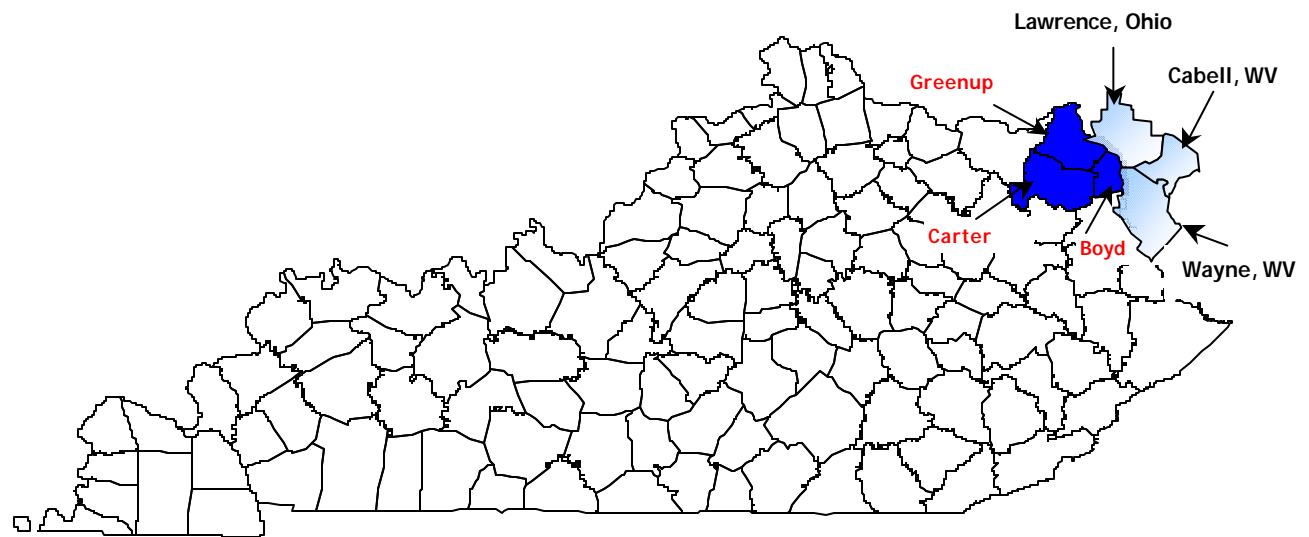


Kentucky Portion of the Huntington-Ashland, WV-KY-OH MSA



The Huntington-Ashland Metropolitan Statistical Area (MSA) encompasses three states and six counties. It includes Lawrence County in Ohio, Cabell and Wayne Counties in West Virginia, and Boyd, Greenup, and Carter Counties in Kentucky. In 2001, this MSA was listed as the 128th largest MSA within the United States.

BOYD COUNTY, KENTUCKY

Boyd County is part of the Huntington-Ashland Metropolitan Statistical Area (MSA) and is located to the south-southeast of Greenup County, Kentucky, and to the east-northeast of Carter County, Kentucky, and north of Lawrence County, Kentucky.

Geography/Topography

Boyd County has a land area of 160 square miles and is located on the banks of the Ohio River in the Appalachian foothills of the tri-state area of Kentucky, Ohio and West Virginia. Although part of the Eastern Kentucky Coal Field Region, the topography of this area is less rugged than that of other eastern Kentucky counties.

Meteorological Information

Due to the close proximity of Huntington, West Virginia, meteorological data from Huntington was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Huntington-Ashland area came from the southwest and typically from 4-6 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 85°F and the mean low was 65°F. The mean precipitation for the same period was 4.5 inches.

Planning

The authority for air quality planning in the Ashland area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for Boyd County is performed by FIVCO in conjunction with the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, the PM_{2.5} monitor (21-019-0017) in Ashland, Boyd County, shows an annual average design value of 14.9 micrograms per cubic meter, which would be in attainment of the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS) (15 micrograms per cubic meter). However, because the Cabell County, West Virginia, and Lawrence County, Ohio, PM_{2.5} monitors have a probable PM_{2.5} design value exceeding the annual PM_{2.5} standard, information for Boyd County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the West Virginia and Ohio counties is the latest available and is not complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are 49,603 persons living in Boyd County. (See table 1-C) That represents approximately 310 persons per square mile. The population of Boyd County is approximately 25.7% rural with the remaining 74.3% living in incorporated areas. The largest cities in Boyd County are Ashland and Catlettsburg. (See table 1-C)

Boyd County's population from 1990 through 2000 decreased by approximately 2.7% (51,150 to 49,752). The population is further expected to decrease by an additional 3.2% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the entire Huntington-Ashland WV-KY-OH MSA, Boyd County represents approximately 16% of the total 2002 population in the MSA and 44% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

With the exception of SO_x point source emissions for Lawrence County, Ohio, the emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). The division discovered a discrepancy in the 1999 NEI for SO_x point source emissions from that county and confirmed what the appropriate emissions should have been. In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles. Ammonia (NH₃) emissions, which are an important PM_{2.5} emissions precursor, are also provided in this document.

Point Sources (Industry)

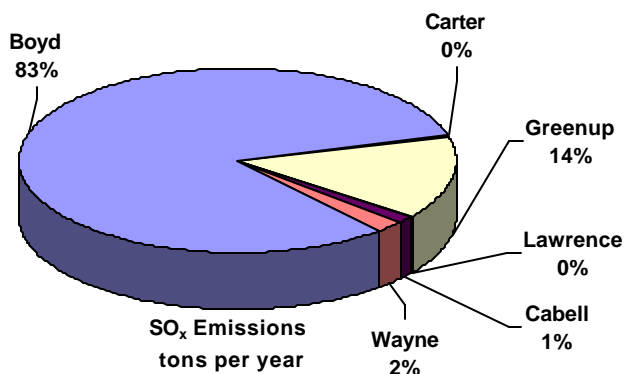
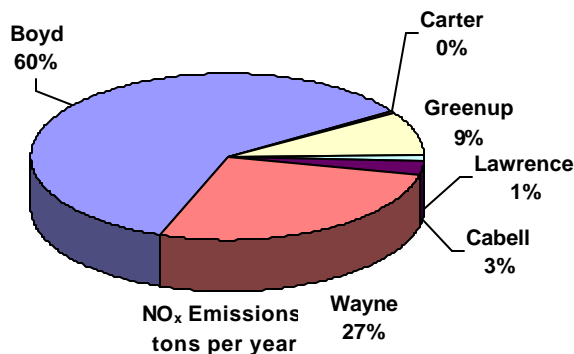
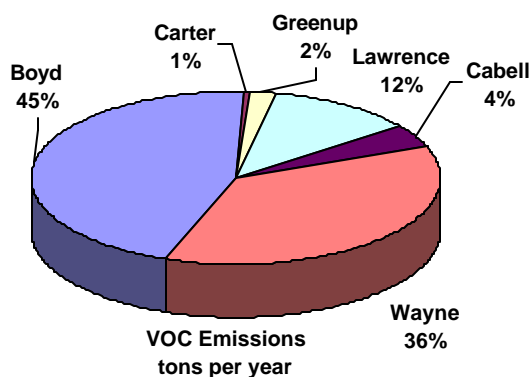
Point source VOC emissions from Boyd County were estimated at 2,696 tons per year (tpy) in 1999, which represents approximately 45% of the total 6,001 tpy overall VOC point source emissions from the Huntington-Ashland area. Point source NO_x emissions from Boyd County were estimated at 7,725 tpy in 1999, which represents approximately 60% of the total 12,825 tpy overall NO_x point source emissions from the Huntington-Ashland area. (See table 1-D)

Point source SO_x emissions from Boyd County were estimated at 10,440 tons per year in 1999, which represents approximately 83% of the total 12,769 tpy overall SO_x point source emissions from the Huntington-Ashland area. (See table 1-E)

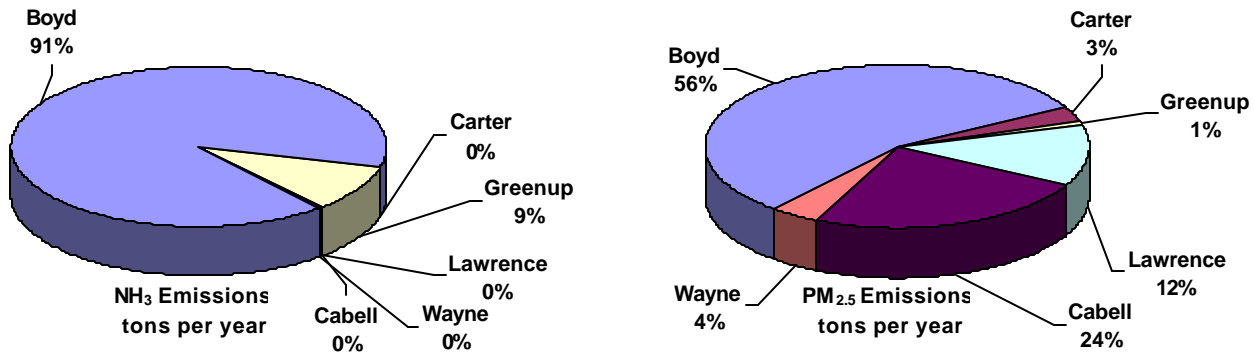
Point source NH_3 emissions from Boyd County were estimated at 349 tpy in 1999, which represents approximately 91% of the total 386 tpy overall NH_3 point source emissions from the Huntington-Ashland area. (See table 1-F)

Point source $\text{PM}_{2.5}$ emissions from Boyd County were estimated at 1,131 tons per year (tpy) in 1999, which represents approximately 56% of the total 2,021 tpy overall $\text{PM}_{2.5}$ point source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Point Source Emissions (tons per year)



1999 NEI Huntington-Ashland MSA Point Source Emissions (continued)



Point sources located within Boyd County are subject to PSD requirements (except for SO₂ where NSR applies for the southern portion of Boyd County), CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

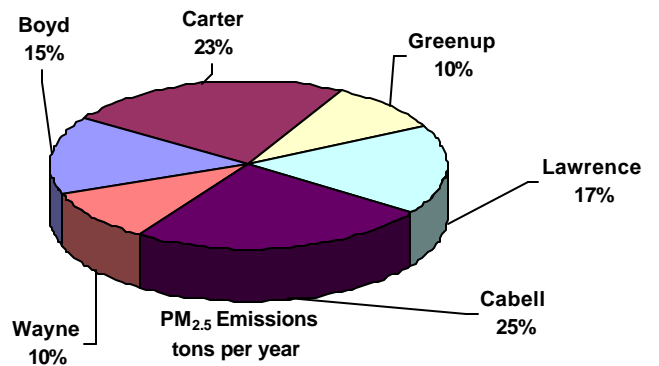
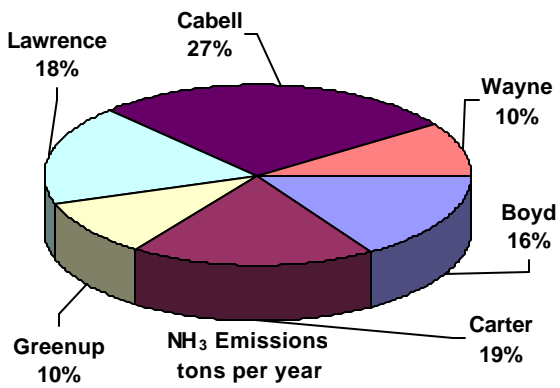
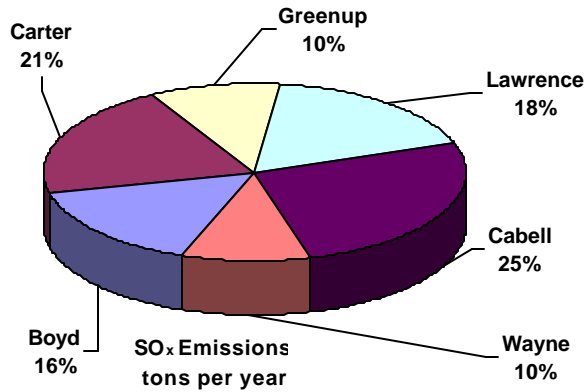
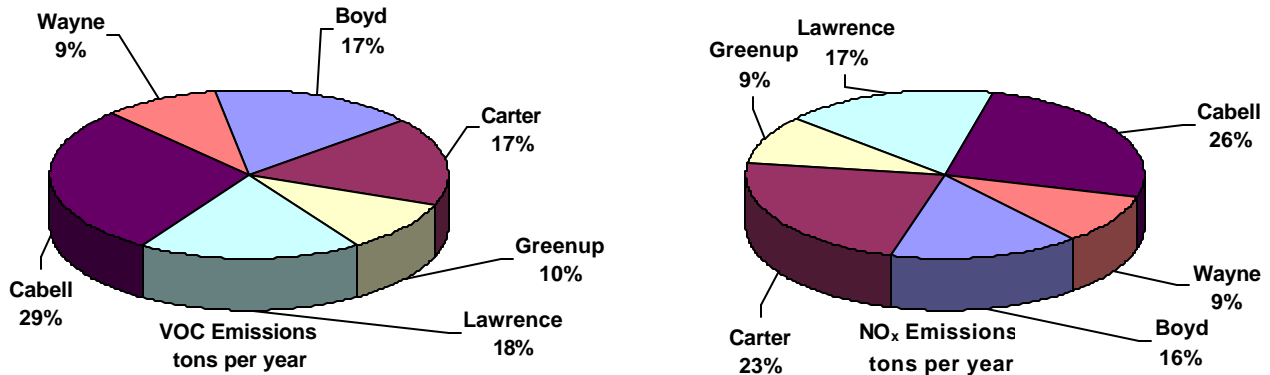
Onroad mobile source VOC emissions from Boyd County were estimated at 1,235 tons per year (tpy) in 1999, which represents approximately 17% of the total 7,364 tpy of overall VOC onroad mobile source emissions from the Huntington-Ashland area. Onroad mobile source NO_x emissions from Boyd County were estimated at 1,849 tpy in 1999, which represents approximately 16% of the total 11,833 tpy of overall NO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-D)

Onroad mobile source SO_x emissions from Boyd County were estimated at 67 tons per year (tpy) in 1999, which represents approximately 16% of the total 430 tpy overall SO_x mobile source emissions from the Huntington-Ashland area. (See table 1-E)

Onroad mobile source NH₃ emissions from Boyd County were estimated at 54 tpy in 1999, which represents approximately 16% of the total 336 tpy overall NH₃ onroad mobile source emissions from the Huntington-Ashland area. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Boyd County were estimated at 40 tons per year in 1999, which represents approximately 15% of the total 266 tpy overall PM_{2.5} onroad mobile source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Onroad Mobile Source Emissions (tons per year)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Boyd County is 46.3% and classified as high, and the commuting traffic from Boyd County into other counties is minimal at 27.7%.

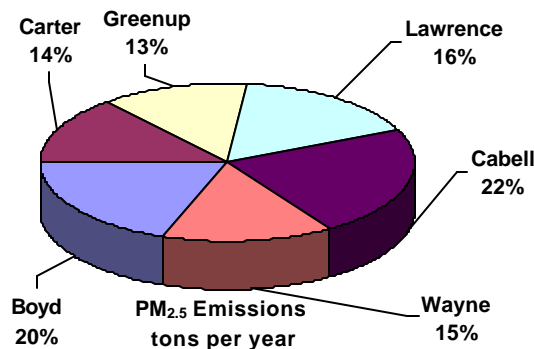
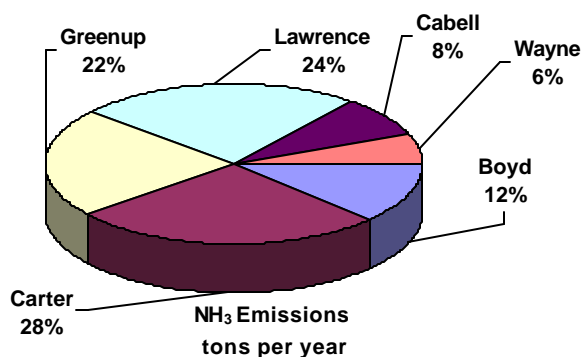
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

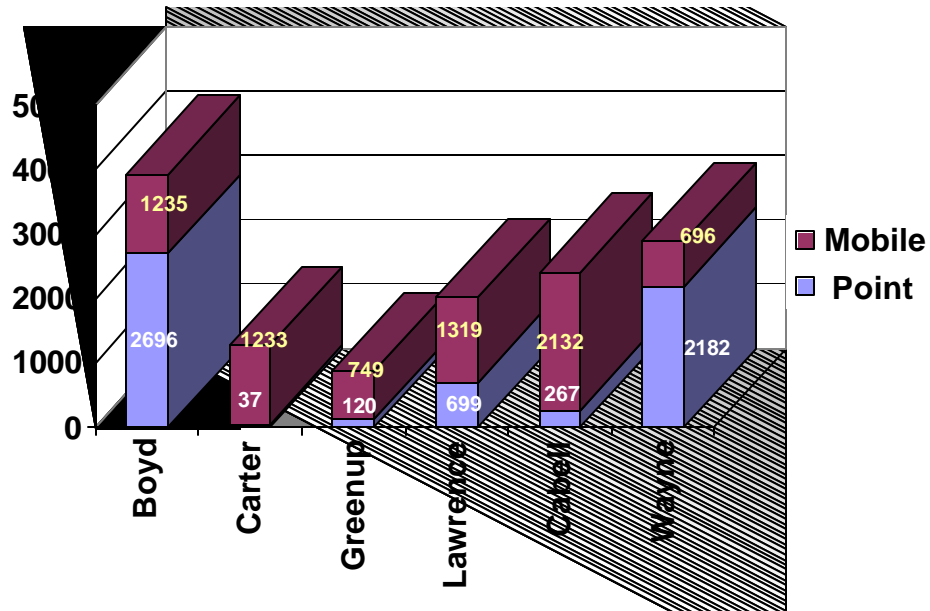
Area source NH_3 emissions from Boyd County were estimated at 157 tpy in 1999, which represents approximately 12% of the total 1,294 tpy of overall NH_3 area source emissions from the Huntington-Ashland area. (See table 1-F)

Area source $\text{PM}_{2.5}$ emissions from Boyd County were estimated at 935 tpy in 1999, which represents approximately 20% of the total 4,749 tpy of overall $\text{PM}_{2.5}$ area source emissions from the Huntington-Ashland area. (See table 1-G)

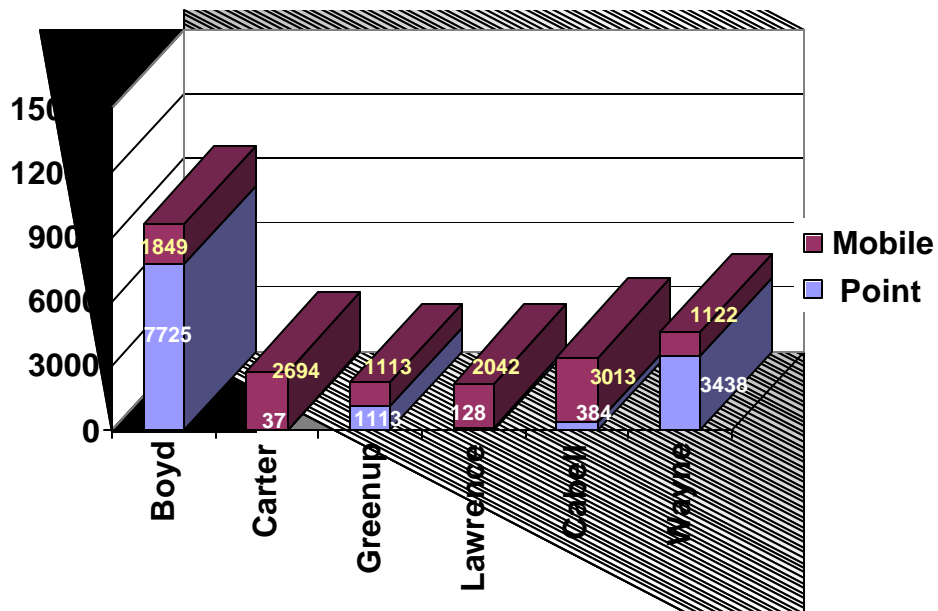
1999 NEI Huntington-Ashland MSA Area Source Emissions (tons per year)



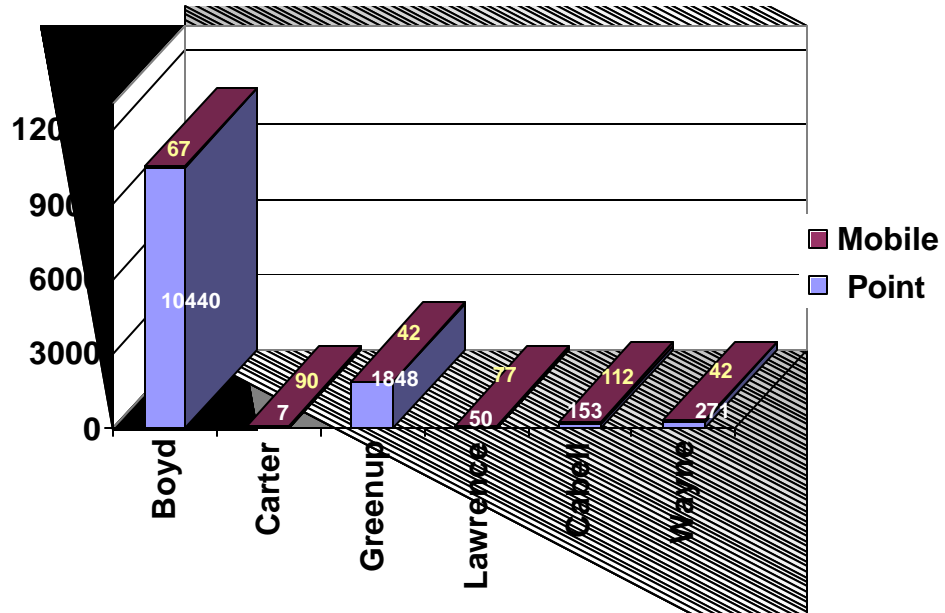
1999 NEI VOC Contribution (tons per year)



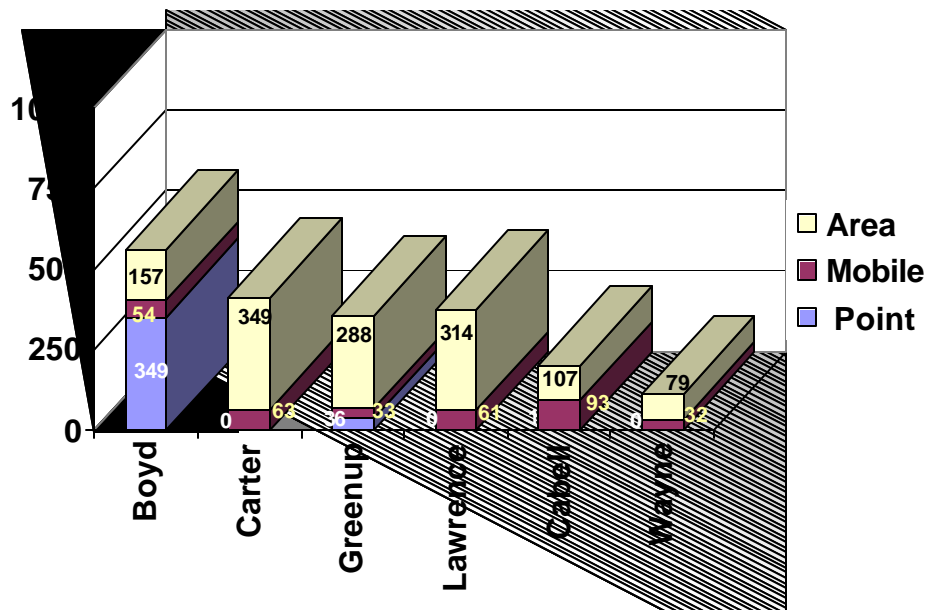
1999 NEI NO_x Contribution (tons per year)



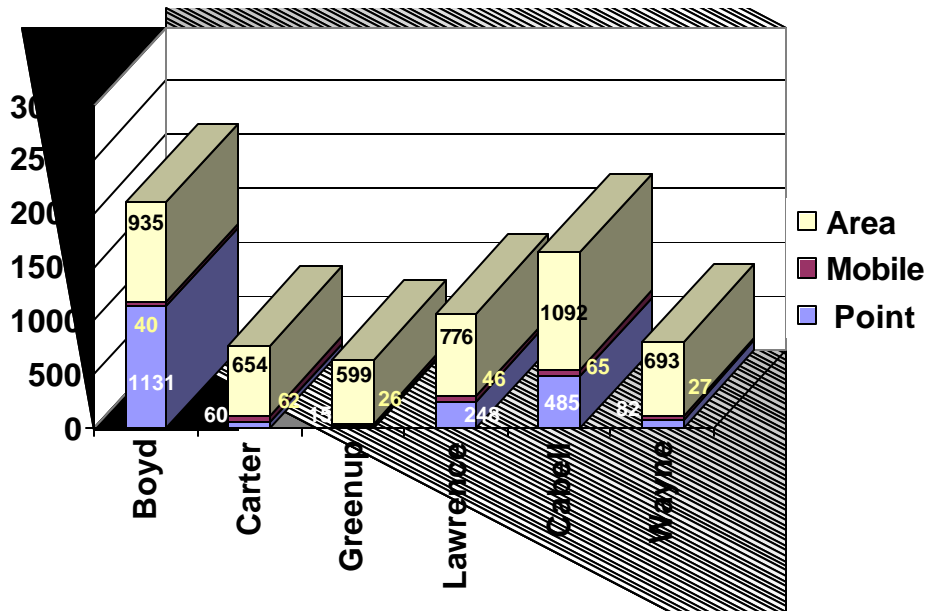
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Monitoring Data

Boyd County, based on 2001 - 2003 PM_{2.5} monitoring data, is in compliance with the annual PM_{2.5} standard with an annual average for that period of 14.9 micrograms per cubic meter. Trends in monitoring data show annual averages have continued to decline over the last three years. Monitors in both Lawrence County Ohio and Cabell County, West Virginia, continue to show violations of the standard. However, those monitors also show a trend in annual averages declining over the last three years. (See table 1-A)

If annual averages continue to decline at the rate seen over the last three years, both monitors showing a violation based on 2001-2003 monitoring data will come back into compliance by the end of the 2005 monitoring season. If PM_{2.5} annual averages remain unchanged from 2003 to 2004, or continue to decline at the rate documented to date, the monitor in Lawrence County, Ohio, will be in compliance with the standard at the end of 2004. With steadily declining values, this appears to be a possibility.

Emissions Data

Emissions data from the 1999 NEI show that Boyd County contributes approximately 79% of total SO_x emissions, 38% of total NO_x emissions, 30% of total PM_{2.5} emissions, and 29% of total VOC emissions in the six county area.

A separate review of 2002 emissions data shows that Boyd County point source emissions of precursor pollutants have decreased or remained steady from 1999 levels. NO_x emissions had decreased by 10%, SO₂ emissions had declined by 7%, and PM remained relatively unchanged.

It is anticipated that emissions of PM_{2.5}, SO_x, and NO_x will decrease substantially within Boyd County over the next two years. These anticipated emission decreases are due to source modernization and new controls being implemented at two major sources in Boyd County.

The Marathon-Ashland Refinery will be substantially modifying their facility. The facility modifications are anticipated to be complete by the end of 2005, and result in substantial emission decreases at the facility. SO₂ emissions are anticipated to decrease by 25%. A 17% decrease in NO_x emissions and an 11% decrease in particulate emissions are also anticipated due to these modifications. Based on 2002 emissions data, this would mean an approximate reduction of 1,571 tons per year of SO₂, a 761 ton per year reduction in NO_x, and a 32 ton per year reduction in particulate matter.

Calgon Carbon Corporation, in May of 2003, shut down two of their activator lines. The shutdown of these two units in May of 2003 resulted in SO₂ emissions being reduced from this facility by approximately 187 tons in 2003. Before these lines can be reactivated, scrubbers, with SO₂ and PM control efficiencies of 90% will be required to be installed on these units, thereby continuing the emission reductions already being seen in the area. If brought back into operation, these units will have controls in place to reduce emissions of SO₂ from these two lines to approximately 32 tons per year. Modifications of operations at this facility will be part of the attainment and maintenance demonstration scheduled to be submitted to U.S. EPA later in 2004 in response to the SO₂ nonattainment issue in Boyd County.

The above mentioned emissions reductions will substantially lower the contributions of both particulate matter and PM_{2.5} precursor emissions from Boyd County. Controls already installed, or those slated for completion within the upcoming months, will be in place before any control strategies relating to the fine particulate standard may be required.

Monitoring data trends show a continuing reduction in fine particulate levels in the region. Kentucky believes this is due to the substantial emission reductions occurring in Boyd County. More recent 2002 and 2003 emissions data support this conclusion and provide further documentation that improvements in air quality are anticipated to continue over the region within the next two years. It is for the reasons presented above that Kentucky believes that any proposed designation should be deferred at this time.

CARTER COUNTY, KENTUCKY

Carter County is part of the Huntington-Ashland Metropolitan Statistical Area (MSA) and is located to the southwest of Greenup County, Kentucky, to the west of Boyd County, to the northwest of Lawrence County, to the north of Elliott County, to the northeast of Rowan County, and to the southeast of Lewis County, in Kentucky.

Geography/Topography

Carter County has a land area of 410 square miles and is located in the Appalachian foothills of the tri-state area of Kentucky, Ohio and West Virginia. Although part of the Eastern Kentucky Coal Field Region, the topography of this area is less rugged than that of other eastern Kentucky counties.

Meteorological Information

Due to the close proximity of Huntington, West Virginia, meteorological data from Huntington was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Ashland area came from the west/southwest and typically from 46 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 85°F and the mean low was 65°F. The mean precipitation for the same period was 4.5 inches.

Planning

The authority for air quality planning in the Ashland area resides with the Kentucky Environmental and Public Protection Cabinet. Transportation planning for Carter County is by FIVCO in conjunction with the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, the PM_{2.5} monitor (21-043-0500) in Grayson Lake, Carter County, shows a annual average design value of 12.1 micrograms per cubic meter, which would be classified as a county in attainment of the PM_{2.5} annual National Ambient Air Quality Standard (NAAQS). The Boyd County monitor to the east is also attaining the standard. However, because the Cabell County, West Virginia, and Lawrence County, Ohio, PM_{2.5} monitors have a probable PM_{2.5} design value exceeding the annual PM_{2.5} standard, information for Carter County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the West Virginia and Ohio counties is the latest available and may not be complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from 2000 census data, there are approximately 27,055 persons living in Carter County. (See table 1-C) That represents approximately 66 persons per square mile. The population of Carter County is approximately 82.2% rural with the remaining 17.8% living in incorporated areas. The largest cities in Carter County are Grayson and Olive Hill.

Carter County's population from 1990 through 2000 increased by approximately 10.5% (24,340 to 26,889). The population is further expected to increase by an additional 9.4% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the entire Huntington-Ashland MSA, Carter County represents approximately 8% of the total 2002 population in the MSA and 24% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5} is directly emitted from a stack or an open source and includes filterable and condensable particles. Ammonia (NH₃) emissions, which are an important PM_{2.5} emissions precursor, are also provided in this document.

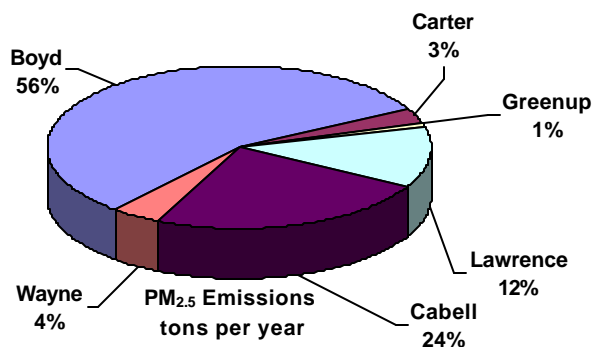
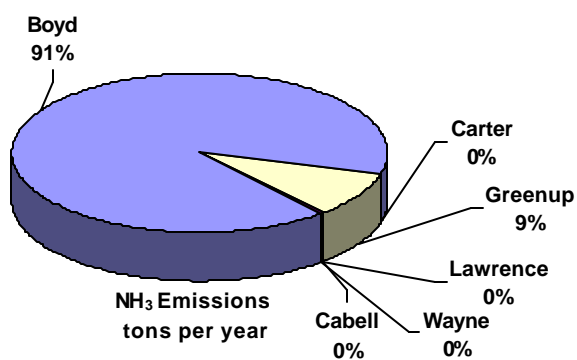
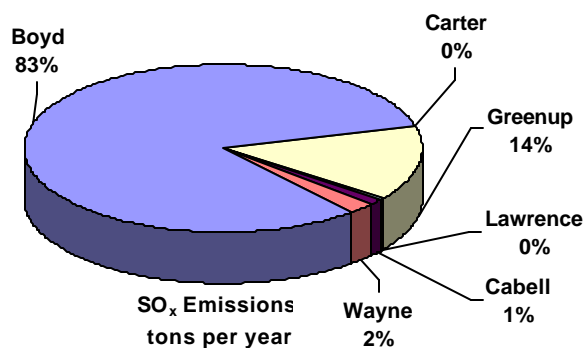
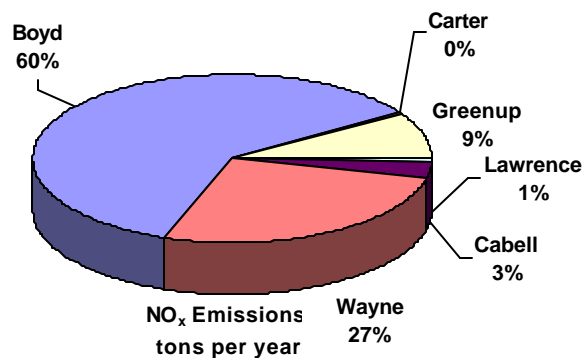
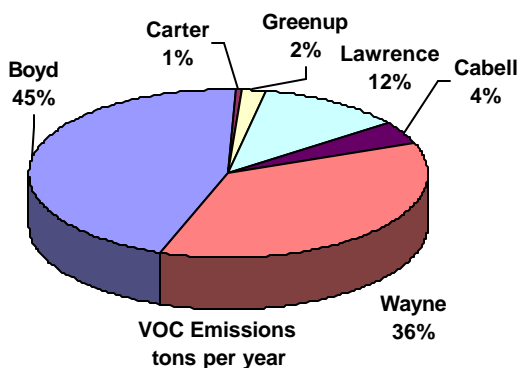
Point Sources

Point source VOC emissions from Carter County were estimated at 37 tons per year (tpy) in 1999, which represents approximately 1% of the total 6,001 tpy overall VOC point source emissions from the Huntington-Ashland area. Point source NO_x emissions from Carter County were estimated at 37 tpy in 1999, which represents less than 1% of the total 12,825 tpy overall NO_x point source emissions from the Huntington-Ashland area. (See table 1-D)

Point source SO_x emissions from Carter County were estimated at 7 tons per year in 1999, which represents less than 1% of the total 12,769 tpy overall SO_x point source emissions from the Huntington-Ashland area. (See table 1-E)

Point source NH₃ emissions from Carter County were estimated at 0 tpy in 1999. (See table 1-F) Point source PM_{2.5} emissions from Carter County were estimated at 60 tons per year (tpy) in 1999, which represents approximately 3% of the total 2,021 tpy overall PM_{2.5} point source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Point Source Emissions (tons per year)



Point sources located within Carter County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

Onroad Mobile

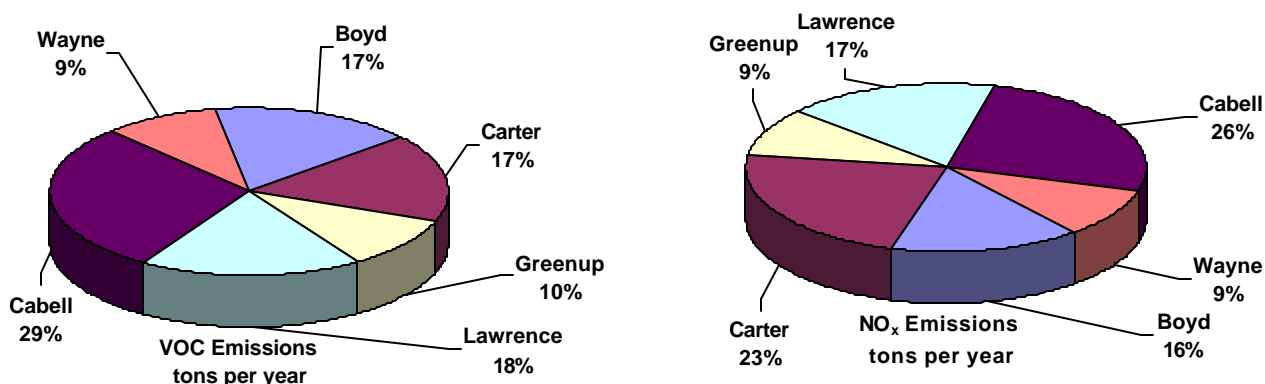
Onroad mobile source VOC emissions from Carter County were estimated at 1,233 tons per year in 1999, which represents approximately 17% of the total 7,364 tpy of overall VOC onroad mobile source emissions from the Huntington-Ashland area. Onroad mobile source NO_x emissions from Carter County were estimated at 2,694 tpy in 1999, which represents approximately 23% of the total 11,833 tpy of overall NO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-D)

Onroad mobile source SO_x emissions from Carter County were estimated at 90 tons per year (tpy) in 1999, which represents approximately 21% of the total 430 tpy overall SO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-E)

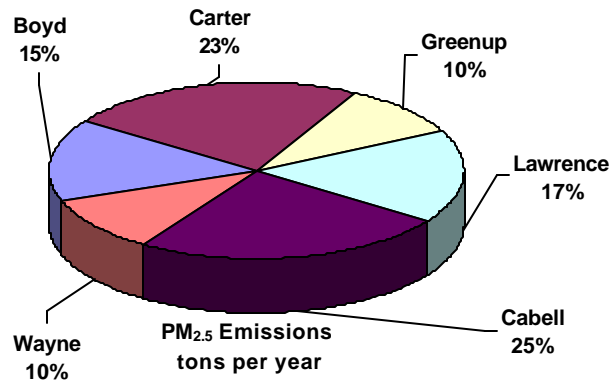
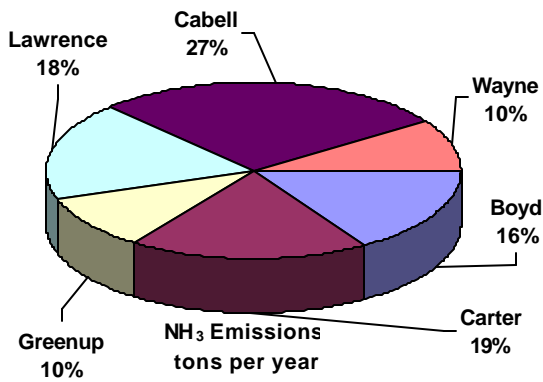
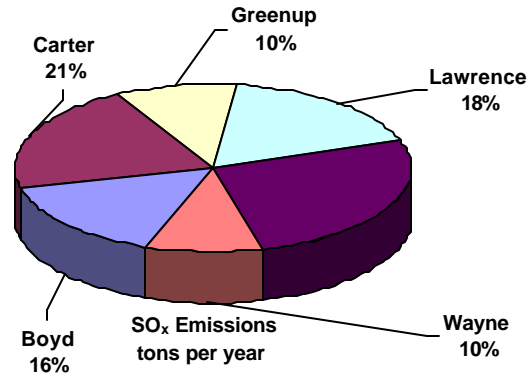
Onroad mobile source NH₃ emissions from Carter County were estimated at 63 tpy in 1999, which represents approximately 19% of the total 336 tpy overall NH₃ onroad mobile source emissions from the Huntington-Ashland area. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Carter County were estimated at 62 tons per year in 1999, which represents approximately 23% of the total 266 tpy overall PM_{2.5} onroad mobile source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Onroad Mobile Source Emissions (tons per year)



1999 NEI Huntington-Ashland MSA Onroad Mobile Source Emissions (continued)



Based on information obtained from the Kentucky Transportation Cabinet, commuting traffic from other counties into Carter County is 21% and classified as minimal, and the commuting traffic from Carter County into other counties is high at 45%.

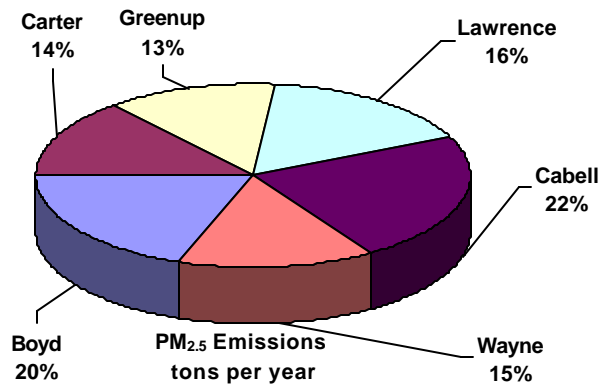
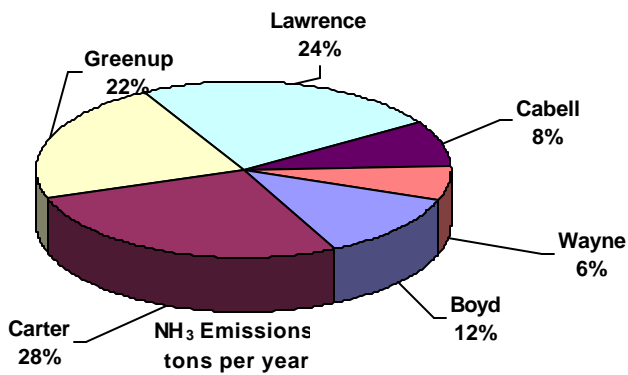
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

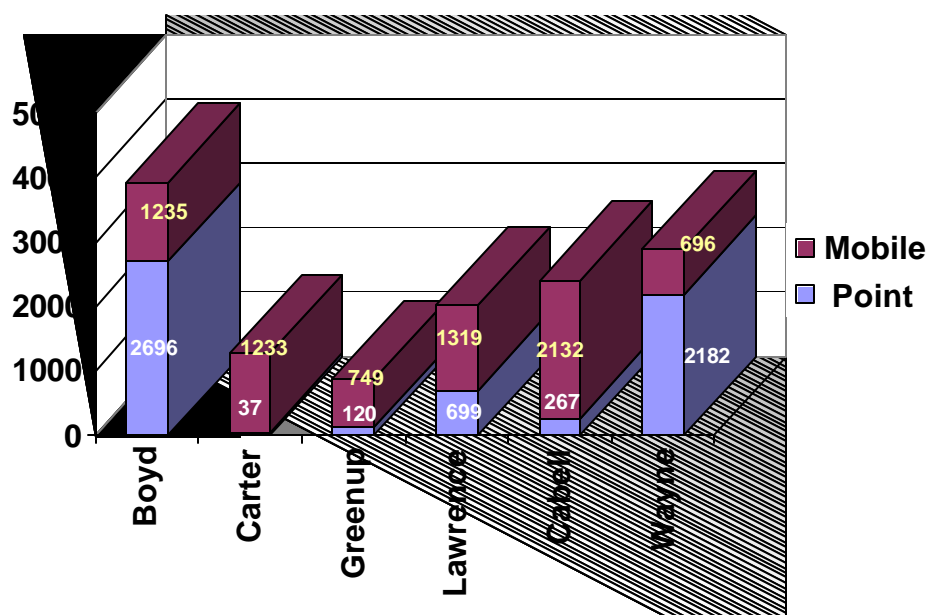
Area source NH_3 emissions from Carter County were estimated at 349 tpy in 1999, which represents approximately 28% of the total 1,294 tpy of overall NH_3 area source emissions from the Huntington-Ashland area. (See table 1-F)

Area source $\text{PM}_{2.5}$ emissions from Carter County were estimated at 654 tpy in 1999, which represents approximately 14% of the total 4,749 tpy of overall $\text{PM}_{2.5}$ area source emissions from the Huntington-Ashland area. (See table 1-G)

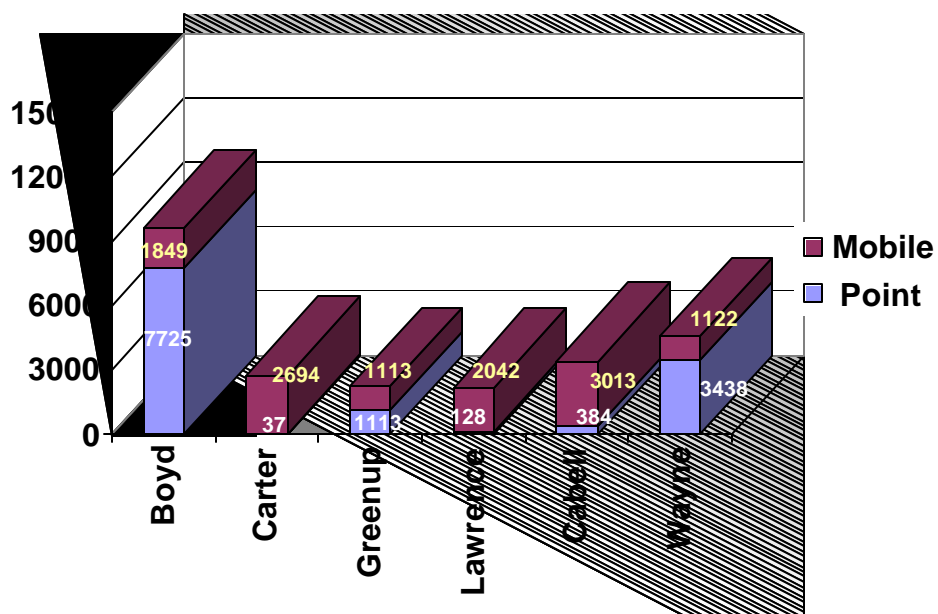
1999 NEI Huntington-Ashland MSA Area Source Emissions (tons per year)



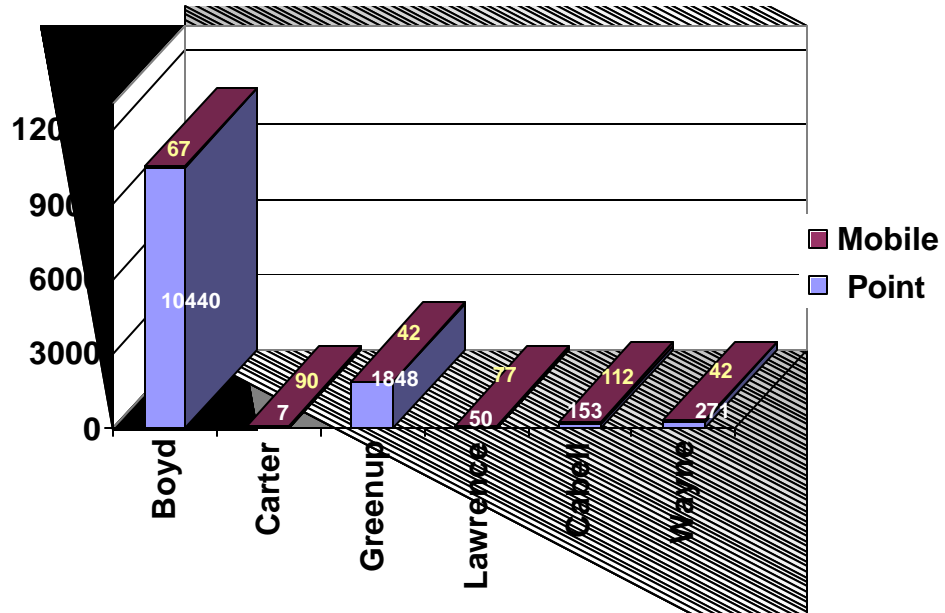
1999 NEI VOC Contribution (tons per year)



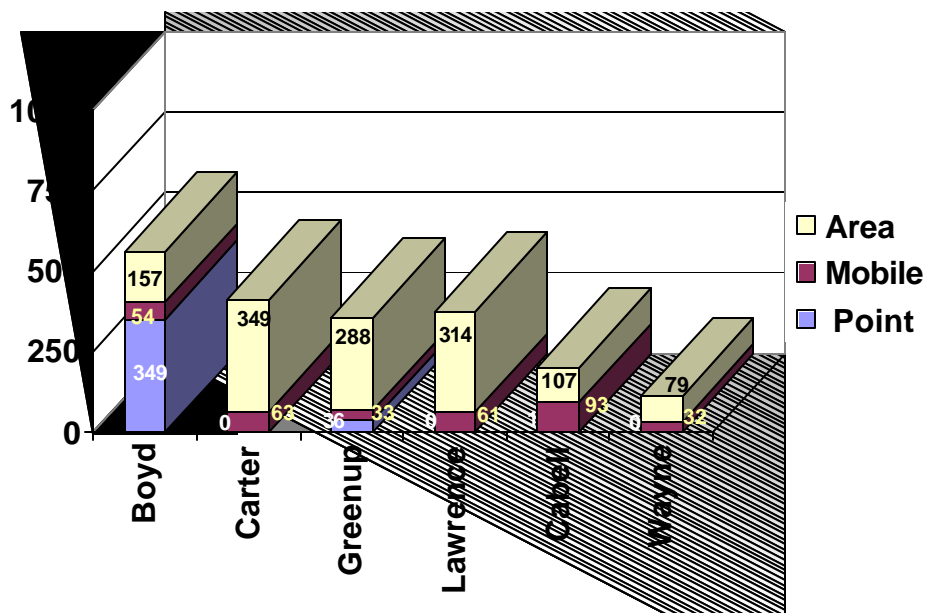
1999 NEI NO_x Contribution (tons per year)



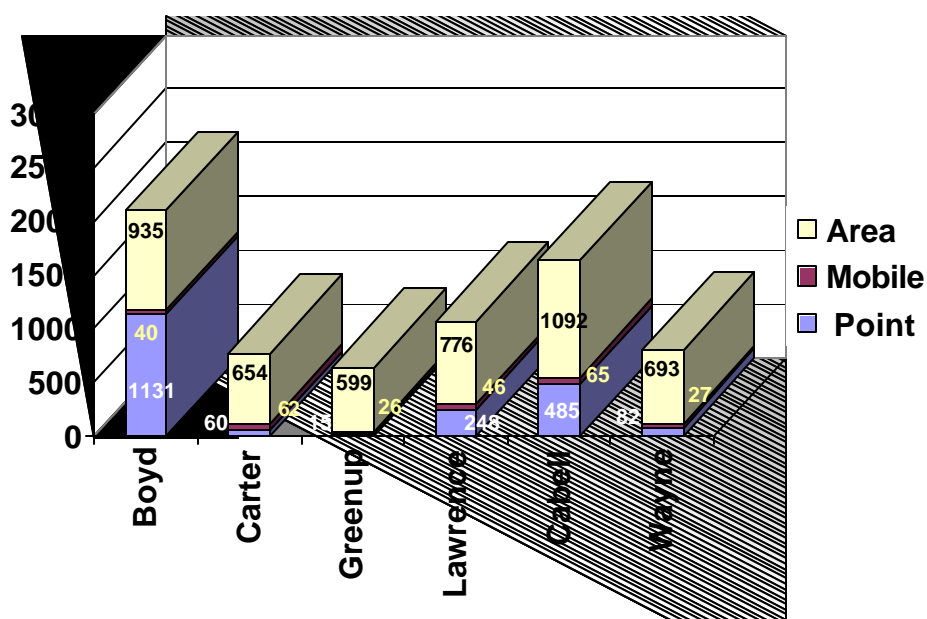
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

Carter County, based on 2001 - 2003 PM_{2.5} monitoring data, is in compliance with the annual PM_{2.5} standard with an average annual design value of 12.1 micrograms per cubic meter.

The emissions from Carter do not contribute significantly to the PM_{2.5} violations in West Virginia. Carter County contributes approximately 20% of the total NH₃ emissions, 11% of the total NO_x and PM_{2.5} emissions, 9% of the total VOC emissions, and less than 1% of the total SO_x emissions in the total metropolitan area.

Therefore, based on the monitoring and emissions data Carter County should be designated attainment for the PM_{2.5} standard.

Greenup County, Kentucky

Greenup County is part of the Huntington-Ashland Metropolitan Statistical Area (MSA) and is located to the north-northwest of Boyd County, north-northeast Carter County, and east of Lewis County, Kentucky.

Geography/Topography

Greenup County has a land area of 346 square miles and is located in the Appalachian foothills of the tri-state area of Kentucky, Ohio and West Virginia. Although part of the Eastern Kentucky Coal Field Region, the topography of this area is less rugged than that of other eastern Kentucky counties. Greenup County is bordered by the Ohio River on its northeastern border.

Meteorological Information

Due to the close proximity of Huntington, West Virginia, meteorological data from Huntington was used for this Kentucky area. Wind speed/wind direction information shows that the majority of the time for the period 1988-1992, the wind in the Huntington-Ashland area came from the southwest and typically from 4-6 knots. (See figure 1-A) The mean high temperature for July for the area from 1961 through 1990 was 85°F and the mean low was 65°F. The mean precipitation for the same period was 4.5 inches.

Planning

The authority for air quality planning in Ashland area resides with the Kentucky Natural Environmental and Public Protection Cabinet. Transportation planning for Greenup County is performed by FIVCO in conjunction with the Kentucky Transportation Cabinet.

Air Monitoring

For the 2001 - 2003 monitoring period, there were no PM_{2.5} monitors located in Greenup County. The Boyd County PM_{2.5} monitor to the southeast shows an average annual design value of 14.9 micrograms per cubic meter, which shows attainment of the PM_{2.5} annual National Ambient Air Quality Standards (NAAQS). However, because the Cabell County, West Virginia, and Lawrence County, Ohio, PM_{2.5} monitors have a probable PM_{2.5} design value exceeding the annual PM_{2.5} standard, information for Greenup County is being presented in this document. The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for the West Virginia and Ohio counties is the latest available and may not be complete through December 2003. (See table 1-A)

Population

Based on projections to 2002 from the 2000 census data, there are approximately 36,761 persons living in Greenup County. That represents approximately 106 persons per square mile. The population of Greenup County is approximately 38.7% rural with the remaining 61.3% living in incorporated areas. There are eight incorporated cities in Greenup County with the largest being Flatwoods, Raceland, Russell, and Worthington.

Greenup County's population from 1990 through 2000 increased by approximately 0.4% (36,742 to 36,891). The population was further expected to increase by an additional 0.3% between 2000 and 2010. (See table 1-B)

Based on 2002 population data for the entire Huntington-Ashland WV-KY-OH MSA, Greenup County represents approximately 12% of the total 2002 population in the MSA and 32% of the Kentucky portion of the MSA. (See table 1-C)

Air Emissions

The emissions presented in this document are from the U.S. EPA's 1999 National Emission Inventory (NEI). In addition, the PM_{2.5} emissions provided in this document are for primary PM_{2.5} from the 1999 NEI. Primary PM_{2.5}, is directly emitted from a stack or an open source and includes filterable and condensable particles. Ammonia (NH₃) emissions, which are an important PM_{2.5} emissions precursor, are also provided in this document.

Point Sources

Point source VOC emissions from Greenup County were estimated at 120 tons per year (tpy) in 1999, which represents approximately 2% of the total 6,001 tpy overall VOC point source emissions from the Huntington-Ashland area. Point source NO_x emissions from Greenup County were estimated at 1,113 tpy in 1999, which represents approximately 9% of the total 12,825 tpy overall NO_x point source emissions from the Huntington-Ashland area. (See table 1-D)

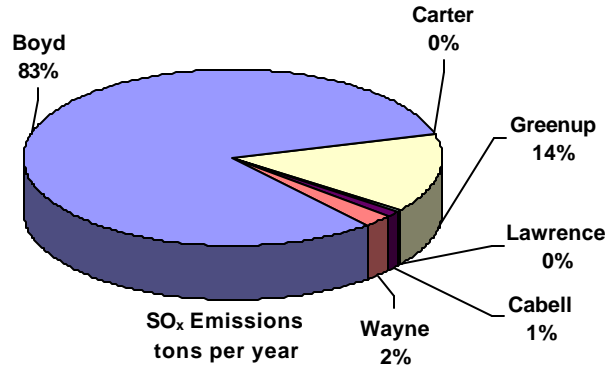
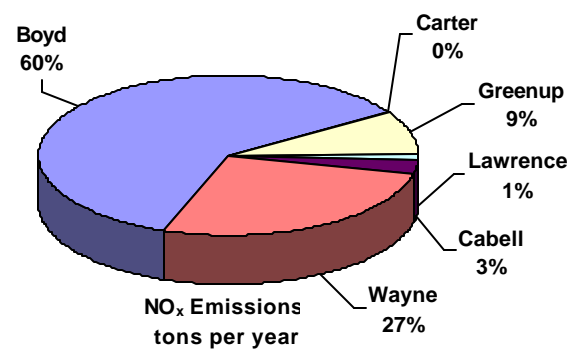
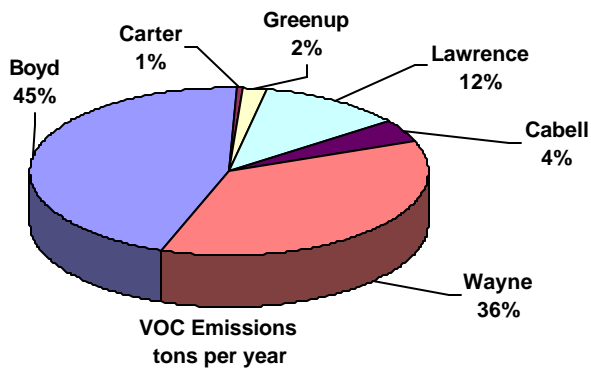
Point source SO_x emissions from Greenup County were estimated at 1,848 tons per year (tpy) in 1999, which represents approximately 14% of the total 12,769 tpy overall SO_x point source emissions from the Huntington-Ashland area. (See table 1-E)

Point source NH₃ emissions from Greenup County were estimated at 36 tpy in 1999, which represents approximately 9% of the total 386 tpy overall NH₃ point source emissions from the Huntington-Ashland area. (See table 1-F)

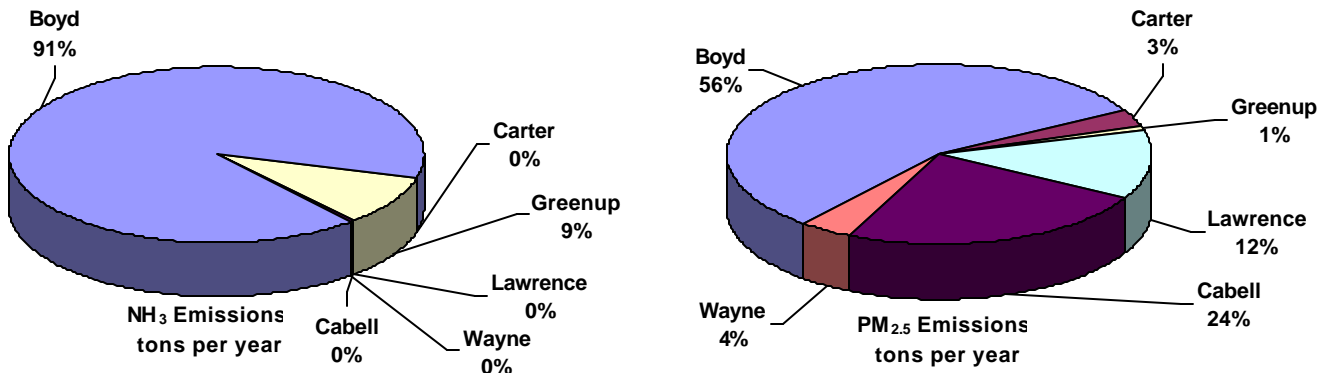
Point source PM_{2.5} emissions from Greenup County were estimated at 15 tons per year (tpy) in 1999, which represents approximately 1% of the total 2,021 tpy overall PM_{2.5} point source emissions from the Huntington-Ashland area. (See table 1-G)

Point sources located within Greenup County are subject to PSD requirements, CTG RACT requirements, Maximum Achievable Control Technology (MACT) requirements for sources of Hazardous Air Pollutants, and New Source Performance Standards (NSPS).

1999 NEI Huntington-Ashland MSA Point Source Emissions (tons per year)



1999 NEI Huntington-Ashland MSA Point Source Emissions (continued)



Onroad Mobile

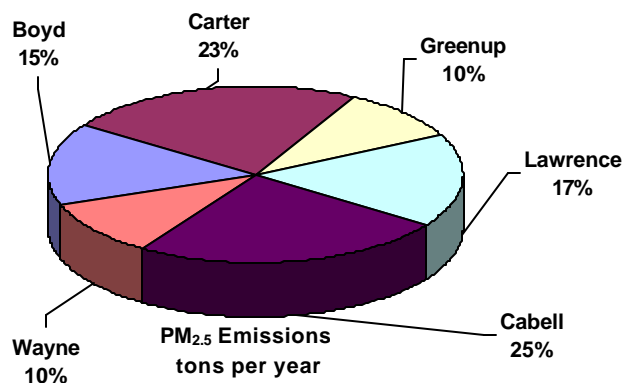
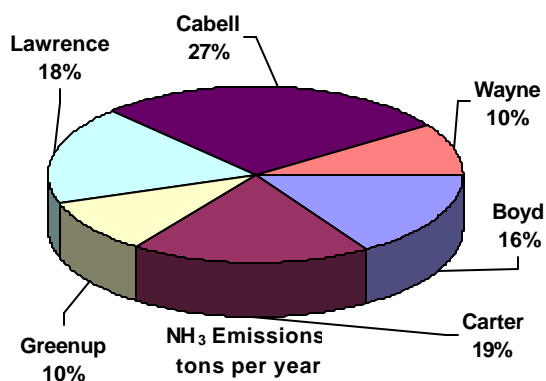
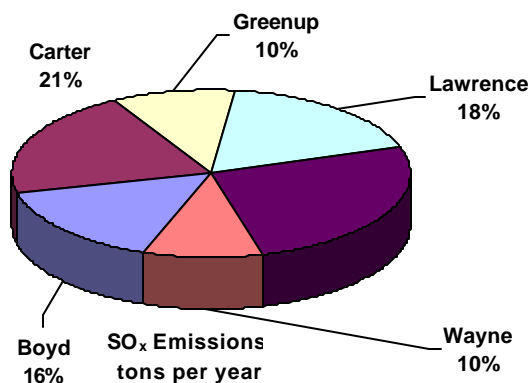
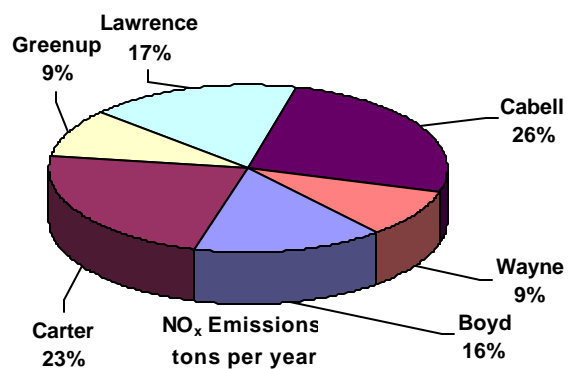
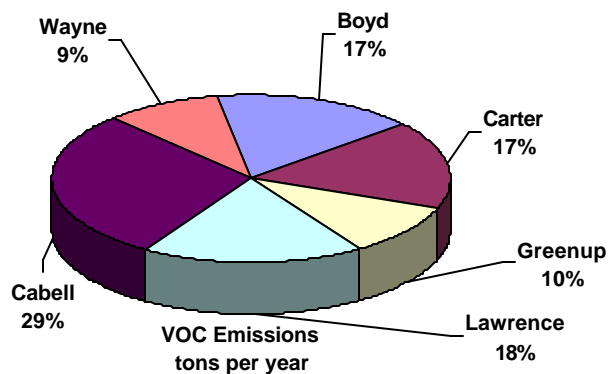
Onroad mobile source VOC emissions from Greenup County were estimated at 749 tons per year (tpy) in 1999, which represents approximately 10% of the total 7,364 tpy of overall VOC onroad mobile source emissions from the Huntington-Ashland area. Onroad mobile source NO_x emissions from Greenup County were estimated at 1,113 tpy in 1999, which represents approximately 9% of the total 11,833 tpy of overall NO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-D)

Onroad mobile source SO_x emissions from Greenup County were estimated at 42 tons per year (tpy) in 1999, which represents approximately 10% of the total 430 tpy overall SO_x onroad mobile source emissions from the Huntington-Ashland area. (See table 1-E)

Onroad mobile source NH₃ emissions from Greenup County were estimated at 33 tpy in 1999, which represents approximately 10% of the total 336 tpy overall NH₃ onroad mobile source emissions from the Huntington-Ashland area. (See table 1-F)

Onroad mobile source PM_{2.5} emissions from Greenup County were estimated at 26 tons per year (tpy) in 1999, which represents approximately 10% of the total 266 tpy overall PM_{2.5} onroad mobile source emissions from the Huntington-Ashland area. (See table 1-G)

1999 NEI Huntington-Ashland MSA Onroad Mobile Source Emissions (tons per year)



Based on information obtained from the Kentucky Transportation Cabinet, Commuting traffic from other counties into Greenup County is 38% and classified high, and the commuting traffic from Greenup County into other counties is significant at 57%.

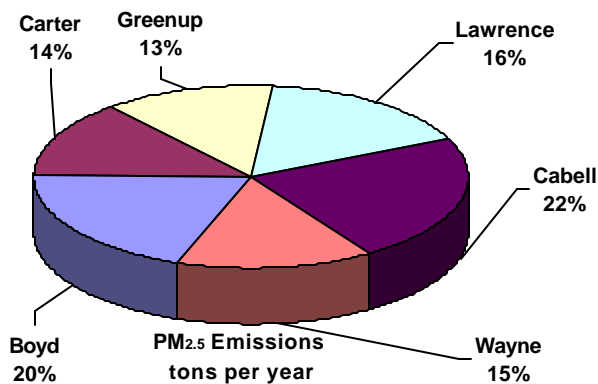
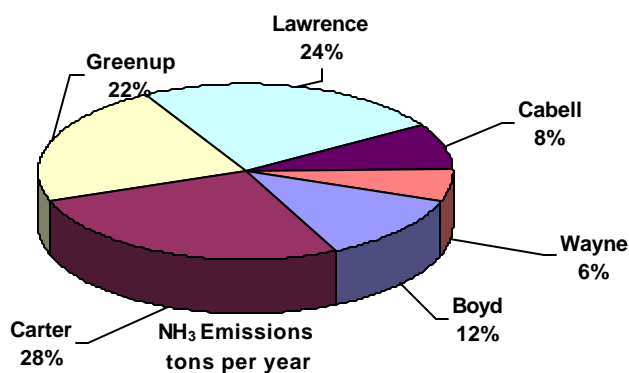
Commuting Classifications	
Not Significant	0-10%
Minimal	11-30%
High	31-50%
Significant	51% or more

Area Sources

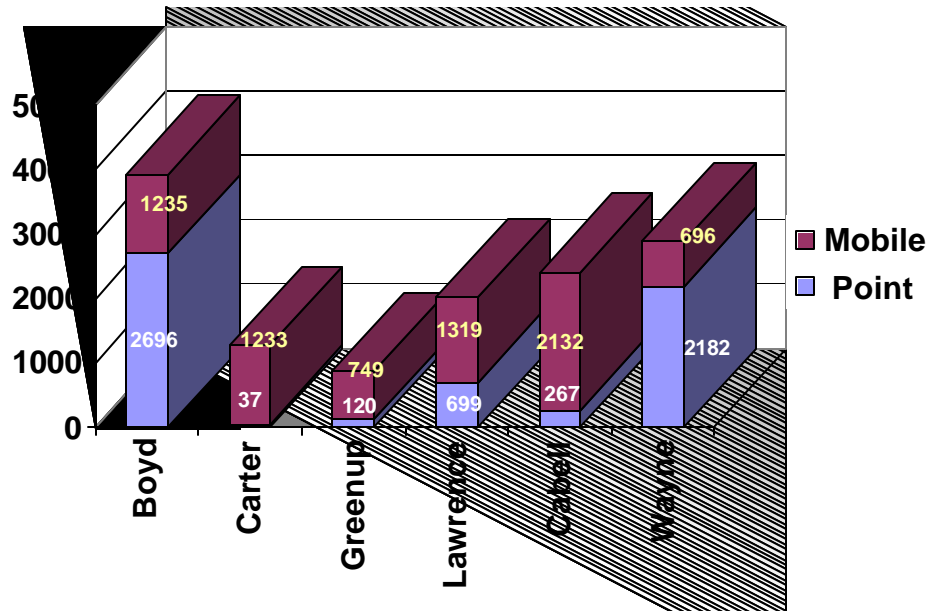
Area source NH_3 emissions from Greenup County were estimated at 288 tpy in 1999, which represents approximately 22% of the total 1,294 tpy of overall NH_3 area source emissions from the Huntington-Ashland area. (See table 1-F)

Area source $\text{PM}_{2.5}$ emissions from Greenup County were estimated at 599 tpy in 1999, which represents approximately 13% of the total 4,749 tpy of overall $\text{PM}_{2.5}$ area source emissions from the Huntington-Ashland area. (See table 1-G)

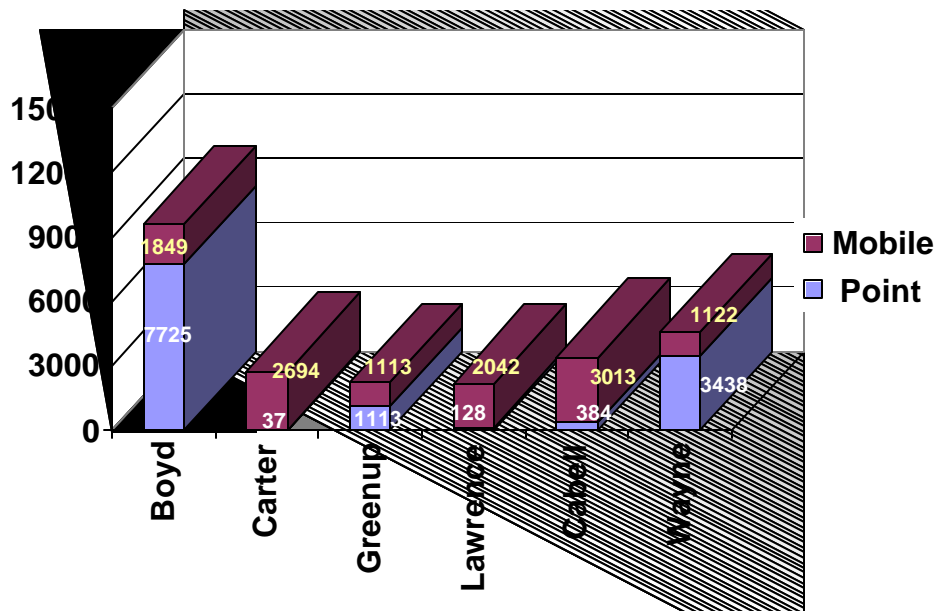
1999 NEI Huntington-Ashland MSA Area Source Emissions (tons per year)



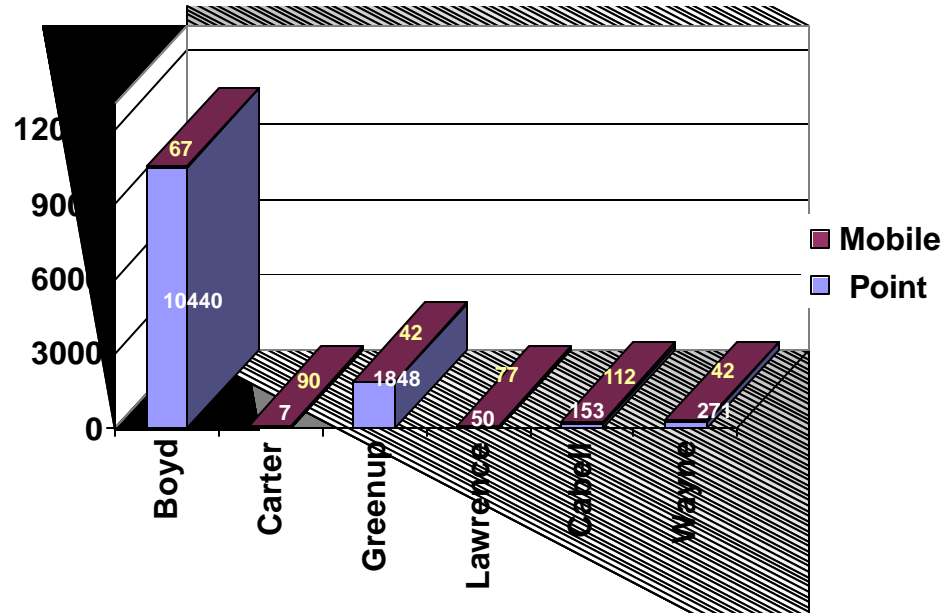
1999 NEI VOC Contribution (tons per year)



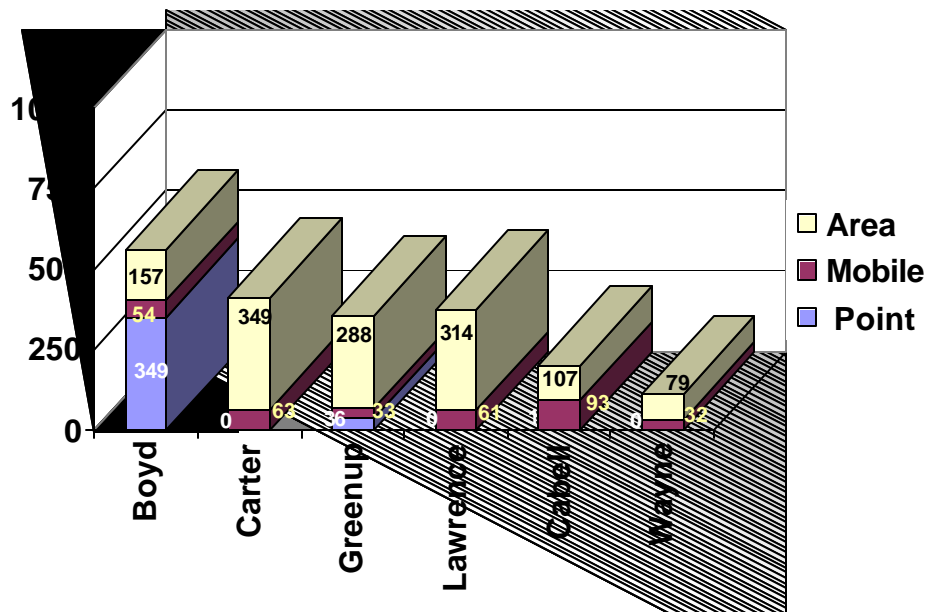
1999 NEI NO_x Contribution (tons per year)



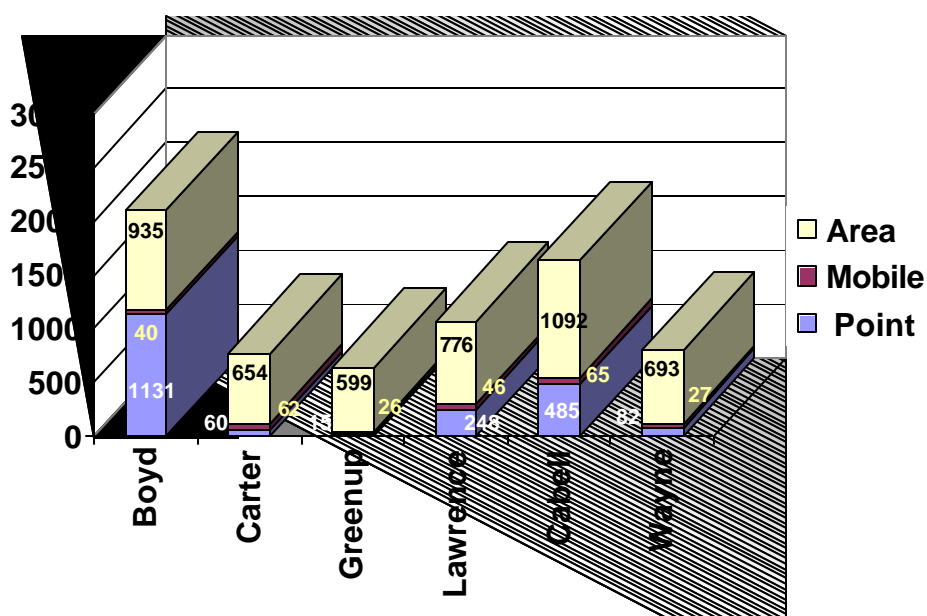
1999 NEI SO_x Contribution (tons per year)



1999 NEI NH₃ Contribution (tons per year)



1999 NEI PM_{2.5} Contribution (tons per year)



Conclusion and Recommendation

There is not a PM_{2.5} monitor located in Greenup County. Monitors in both Boyd County and Carter County, Kentucky, are showing averages below the annual fine particulate standard. However, monitors in both Lawrence County, Ohio, and Cabell County, West Virginia, are showing values above the fine particulate standard for the 2001-2003 period. A detailed review of monitoring data for the area shows that annual averages at all monitoring sites within the metropolitan area have been declining over the last three years, therefore, air quality is improving in the area.

A review of 1999 NEI data shows that Greenup County contributes approximately 17% of the NH₃ emissions, 14% of SO_x emissions, 9% of both NO_x and PM_{2.5} and 7% of VOC emissions in the total MSA.

A separate review of 2002 Division for Air Quality emissions data shows that point source emissions of precursor pollutants in Greenup County have decreased or remained basically the same from 1999 levels. A reduction of 17% in NO_x emissions and 5% in SO₂ emissions were seen, while particulate matter emissions in the county remained basically the same.

Greenup County's contribution of most pollutants is less than any other county in the MSA except Carter County. Both PM_{2.5} monitors in Kentucky are showing averages below the annual standard and monitors in both West Virginia and Ohio are showing steady improvements in fine particulate levels. (See figure 1- E)

Therefore, based on monitoring and emissions information presented in this document, Greenup County should be designated as attainment for the PM_{2.5} standard.

Huntington-Ashland, WV-KY-OH MSA

Figure 1-A

Wind Rose Patterns

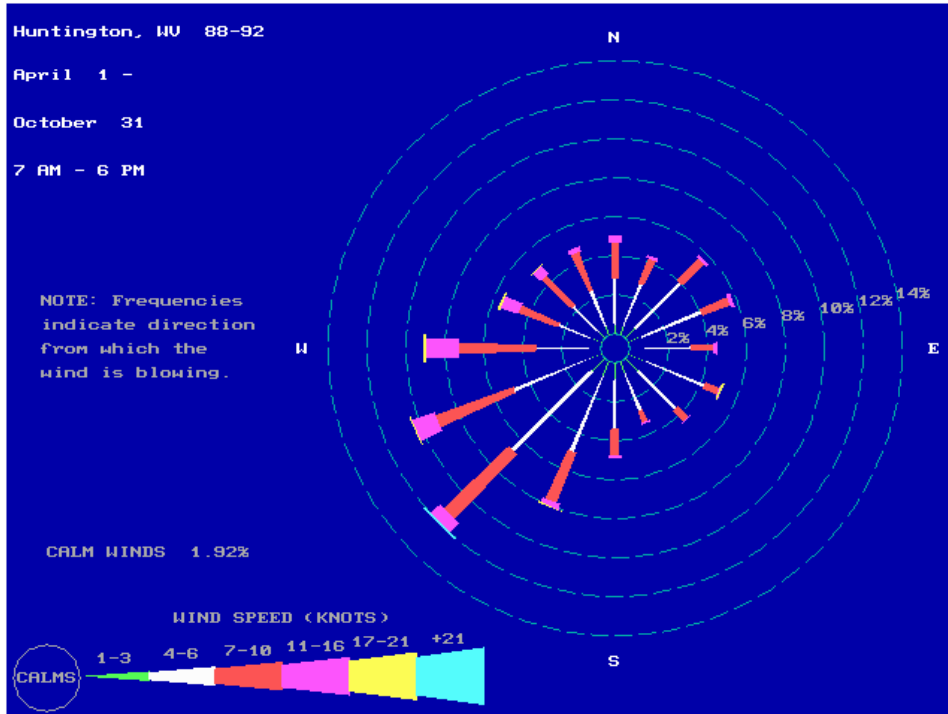


Figure 1-A-1
Ashland -Huntington MSA Map

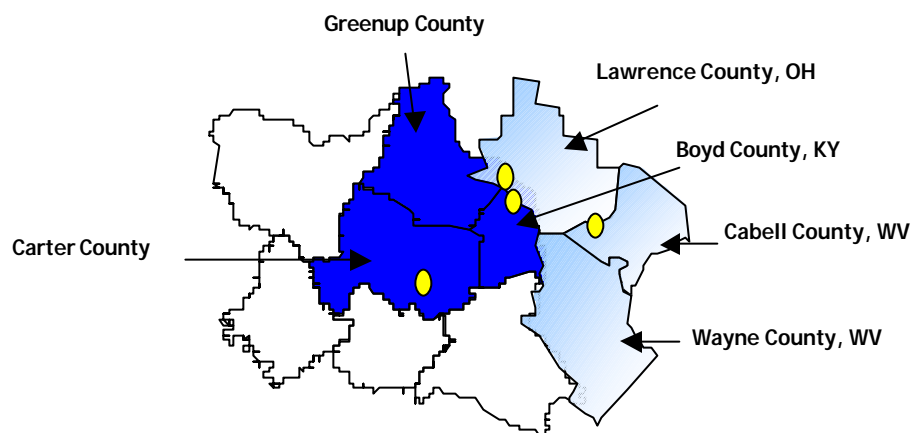


Figure 1-B
1999 NEI Huntington-Ashland MSA
VOC and NO_x Emissions
 (tons per year)

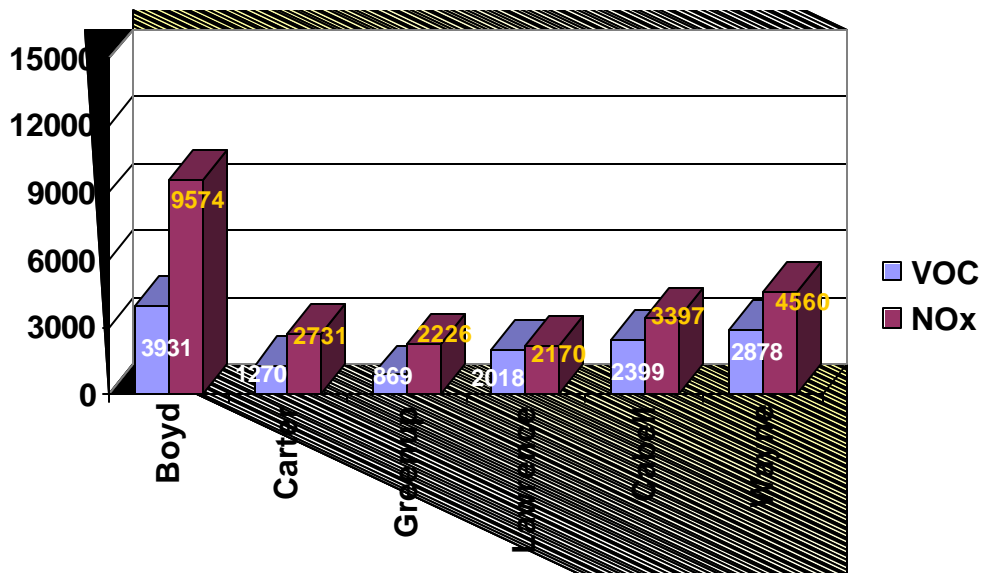


Figure 1-C
1999 NEI Huntington-Ashland MSA
SO_x Emissions
 (tons per year)

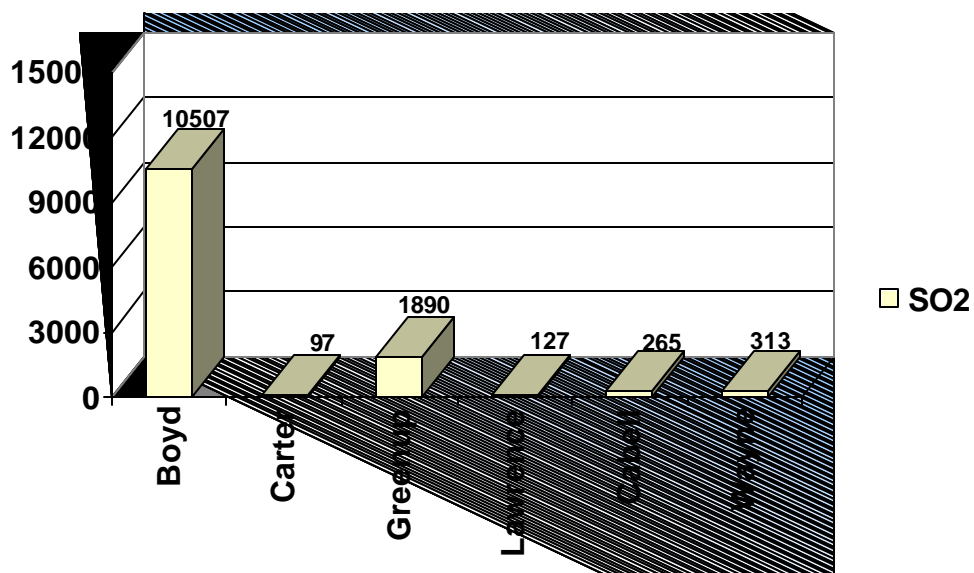


Figure 1-D
1999 Huntington-Ashland MSA
NH₃ and PM_{2.5} Emissions
(tons per year)

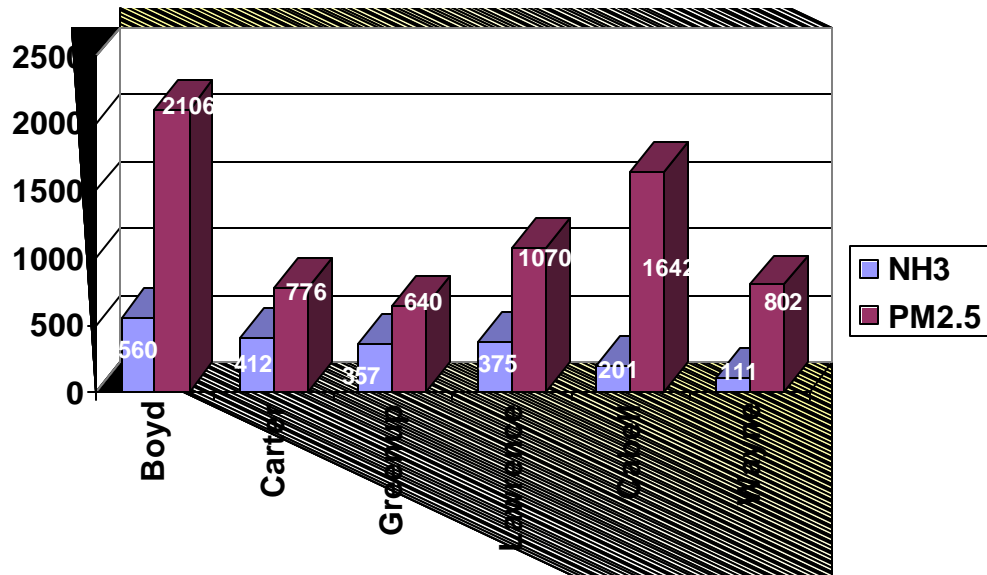
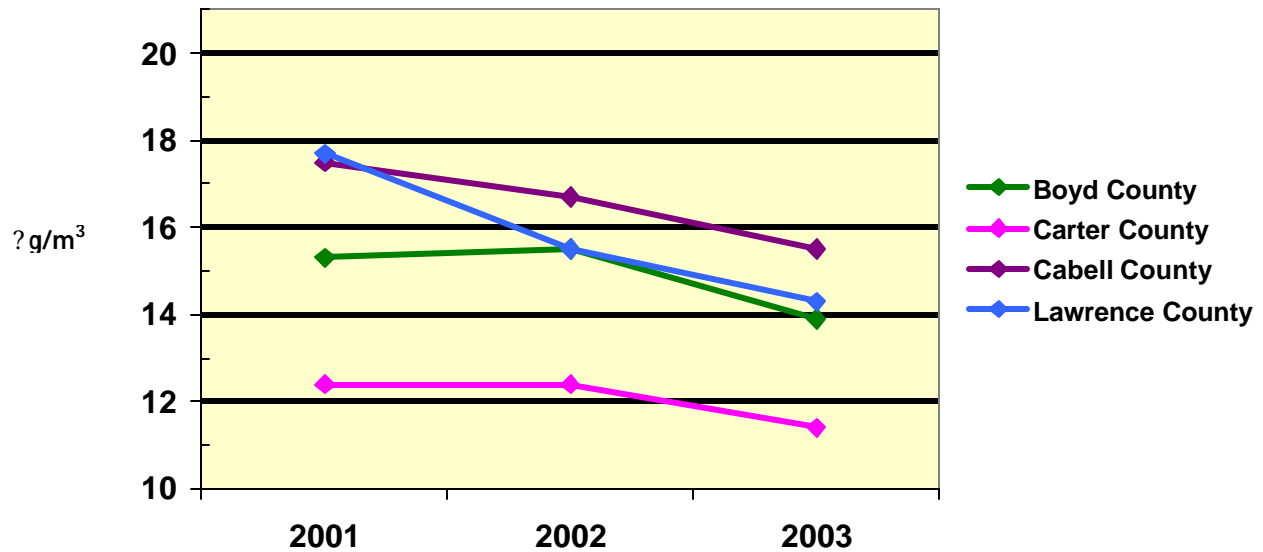


Table 1-A
Average Annual Design Values for PM_{2.5}
(micrograms per cubic meter)

County	2001	2002	2003*	Design Value
Kentucky				
Boyd	15.3	15.5	13.9	14.9
Carter	12.4	12.4	11.4	12.1
Greenup				N/A
West Virginia				
Cabell	17.5	16.7	15.5	16.6
Wayne				N/A
Ohio				
Lawrence	17.7	15.5	14.3	15.8

The monitoring information for 2003 is complete for the Kentucky counties. However, the 2003 monitoring data reported for West Virginia and Ohio counties is the latest available and may not be complete through December 2003.

**Figure 1-E
Air Monitoring Trends**



**Table 1-B
Ashland Area Population
Growth Data**

County	1990	2000	%Growth 1990 - 2000	2010	%Growth 2000 - 2010
Boyd	51,150	49,752	-2.7%	48,148	-3.2%
Carter	24,340	26,889	10.5%	29,406	9.4%
Greenup	36,742	36,891	0.4%	36,989	0.3%

Table 1-C
2002 Estimated Huntington-Ashland WV-KY-OH MSA
Population

Kentucky	Estimated Population	% of Total
Boyd County	49,603	16%
Carter County	27,055	8%
Greenup County	36,761	12%
Ohio		
Lawrence County	62,172	20%
West Virginia		
Cabell County	95,266	30%
Wayne County	42,382	14%
Total Estimated Population	313,239	

Table 1-D
1999 NEI Huntington-Ashland WV-KY-OH MSA
VOC and NO_x Emissions
(tons per year)

County	VOC			NO _x		
	Point	Mobile	Total	Point	Mobile	Total
Boyd	2,696	1,235	3,931	7,725	1,849	9,574
Carter	37	1,233	1,270	37	2,694	2,731
Greenup	120	749	869	1,113	1,113	2,226
Lawrence	699	1,319	2,018	128	2,042	2,170
Cabell	267	2,132	2,399	384	3,013	3,397
Wayne	2,182	696	2,878	3,438	1,122	4,560
Total Emissions	6,001	7,364	13,365	12,825	11,833	24,658

Table 1-E
1999 NEI Huntington-Ashland WV-KY-OH MSA
SO_x Emissions
(tons per year)

County	SO _x		
	Point	Mobile	Total
Boyd	10,440	67	10,507
Carter	7	90	97
Greenup	1,848	42	1,890
Lawrence	50	77	127
Cabell	153	112	265
Wayne	271	42	313
Total Emissions	12,769	430	13,199

Point source SO_x emissions for Lawrence County, Ohio were obtained from Ohio EPA instead of the 1999 NEI.

Table 1-F
1999 NEI Huntington-Ashland WV-KY-OH MSA
NH₃ Emissions
(tons per year)

County	NH ₃			
	Area	Point	Mobile	Total
Boyd	157	349	54	560
Carter	349	0	63	412
Greenup	288	36	33	357
Lawrence	314	0	61	375
Cabell	107	1	93	201
Wayne	79	0	32	111
Total Emissions	1,294	386	336	2,016

Table 1-G
1999 NEI Huntington-Ashland WV-KY-OH MSA
PM_{2.5} Emissions
(tons per year)

County	PM _{2.5}			
	Area	Point	Mobile	Total
Boyd	935	1,131	40	2,106
Carter	654	60	62	776
Greenup	599	15	26	640
Lawrence	776	248	46	1,070
Cabell	1,092	485	65	1,642
Wayne	693	82	27	802
Total Emissions	4,749	2,021	266	7,036